THE OHIO BROADBAND STRATEGY

INNOVATE◉hio

JON HUSTED
Lt. Governor of Ohio

Ohio: Technology and Innovation

The Ohio Transportation Research Center (TRC) is the largest independent vehicle testing facility in the U.S.

NASA Glenn Research Center houses the world's largest and most powerful space environment simulation facilities including the Space Simulation Vacuum Chamber.

The Ohio Academic Resources Network (OARnet) is more than 2,000 miles statewide of dedicated high-speed fiber serving Ohio's government, research institutions, medical centers and the Ohio Supercomputer Center.

Wright-Patterson Air Force Base in Dayton serves as headquarters for a logistics system, a world-class laboratory research function, and is the foremost acquisition and development center in the U.S. Air Force.

THE OHIO BROADBAND STRATEGY

Dear Ohioan,

In some parts of Ohio, communities have little or no access to the internet because the digital infrastructure has yet to be built. The lack of basic connectivity is limiting opportunities for some businesses and residents.

Incomplete broadband connectivity is putting Ohio at a competitive disadvantage. Our team at InnovateOhio, led by Lt. Governor Jon Husted, is working to improve the broadband network throughout the state. The Ohio Broadband Strategy, with input from business and community leaders, explores ways to provide service to all communities by leveraging our state assets and resources, encouraging public-private partnerships, and coordinating broadband expansion with economic development initiatives.

We want all Ohioans to have the ability to participate in Ohio's economy. Together, we can create a more robust broadband network and achieve this goal.

Very respectfully yours,

Mike DeWine
Governor

THE OHIO BROADBAND STRATEGY

Dear Ohioan,

In today's information-driven world, high-speed internet access is not a luxury – it is a necessity. By connecting our communities, we are reconnecting Ohioans with one another and helping to ensure that everyone has the opportunity to benefit from this vital resource. However, there are many areas of our state, particularly the more rural areas, which lack necessary access to high-speed internet service.

At the start of 2019, Governor DeWine and I created InnovateOhio with a mission to make Ohio the most innovative, creative, and entrepreneurial state in the Midwest. We want to use technology to improve the way citizens interact with state government. But these changes will fail to make the impact we desire if parts of our state lack high-speed internet access. No amount of innovation or creativity can counter a lack of connectivity.

The Ohio Broadband Strategy is a crucial step forward in our efforts to bridge the digital divide and deliver high-speed internet access to unserved and underserved areas of this state.

This plan represents both a necessary step so Ohio can compete for federal resources as well as a collective effort across public and private sectors to reach areas currently lacking connectivity. The Ohio Broadband Strategy will support economic growth, make Ohio more competitive, and improve the quality of life for newly connected citizens and families – ultimately delivering the modern broadband infrastructure that every Ohioan deserves.

Jon Husted

Jon Husted
Lt. Governor

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Introduction

Ohio has a history of innovation and has been at the forefront of business and industry for much of its history. Orville and Wilbur Wright, from Dayton, developed wing designs and flew the world's first successful airplane. Thomas Edison, from Milan, holds more patents than any other American and invented the light bulb, forever changing the modern industrialized world. According to NASA, 25 astronauts are Ohio natives, having made nearly 80 space flights, with three of those flights being trips to the moon.

With this entrepreneurial spirit and a strong business climate, Ohio is positioned for continued growth. The 7th largest economy in the US and 21st in the world, Ohio has a skilled and productive workforce ready to meet the needs and challenges of the 21st Century.

The DeWine-Husted Administration understands that access to fast, reliable internet services has become a standard of living necessary for gainful employment, integration into educational programs, and preparation for careers we expect to exist in the future.

For more than 300,000 households in Ohio representing close to 1 million Ohioans, a lack of access to high-speed internet is a critical barrier. In some parts of Ohio, the connectivity required for children to do computer-based homework and for adults to look for a new job or access online education or training programs does not exist.

Ohio's most recent mapping efforts demonstrates that many Ohioans, particularly in rural areas, face connectivity issues. These maps are based on the most recently available data from the Federal Communications Commission and can be found at InnovateOhio.gov/Broadband.

Ohio communities with limited or no access to high-speed internet now clearly suffer from a competitive disadvantage in today's technology-infused and global economy.

Because each region of Ohio presents unique challenges, state government will pursue a number of complementary strategies to leverage resources and encourage private sector participation in expanding high-speed internet to those who have already waited far too long.

With a comprehensive approach, Ohio can drive towards the goals of bringing high-speed internet to every Ohioan while building a best-in-class network.

The vision of the Ohio Broadband Strategy is to:

Bring high-speed internet access to every Ohioan.
Build a best-in-class broadband network in Ohio.

To bring high speed internet access to every Ohioan, the Ohio Broadband Strategy focuses on improving access for two groups: the unserved and underserved.

The Federal Communications Commission (FCC) currently defines broadband internet access as 25 megabits per second downstream and 3 megabits per second upstream. For purposes of this report, Ohio has adopted the FCC definition in this respect and defines underserved as any region that typically has access to speeds less than the FCC definition of broadband internet access. The state also recognizes the definition of broadband internet will continue to change as technology evolves, requiring even faster speeds.

The most recent available maps detailing internet service in Ohio show that the state is lacking in adequate coverage for high-speed internet access in low population and rural parts of the state. To be successful, the State of Ohio should identify opportunities to fill these gaps and ensure all Ohioans have access to high-speed internet. And in doing so, build a best-in-class network that makes Ohio a leader in statewide high-speed coverage.

This strategy lays a framework for establishing a leadership position for Ohio in broadband deployment and utilization. Building a best-in-class broadband network is essential to continually provide the infrastructure necessary for economic success. As new technologies bring new demands, Ohio will continue focusing on improvements to elevate to better and faster internet speeds.

Ohio will focus on specific projects to successfully achieve the Ohio Broadband Strategy vision. Wherever possible, the state will emphasize projects related to health services, community infrastructure, and education initiatives, all of which are core components of the DeWine-Husted Administration. The state will also prioritize projects that focus on expanding services to unserved or underserved Ohioans, many of whom are located in rural areas of the state.

Ohio does not intend to own the network. Instead, going forward, Ohio must be a partner at coordinating new or existing high-speed internet expansion efforts. The state should be open to exploring new ideas and not focus on picking winners and losers; rather, Ohio must be open to identifying ways to bring high-speed internet to the whole state and creating an overall healthy environment in Ohio conductive to encouraging and incentivizing expansion.

Figures 1 and 2 demonstrate the needed internet speeds for completing various common tasks and activities.

Figure 1: Federal Communications Commission, Household Brand Guide	Light Use — Basic functions: email, browsing, basic video, VoIP, internet radio	Moderate Use — Basic functions plus one high-demand application: streaming HD video, multiparty video conferencing, online gaming, telecommuting	High Use — Basic functions plus more than one high-demand application running at the same time
1 user on 1 device	Basic*	Basic	Medium
2 users or devices at a time	Basic	Medium	Medium/Advanced
3 users or devices at a time	Medium†	Medium	Advanced
4 users or devices at a time	Medium	Advanced‡	Advanced

*Basic Service = 3 to 8 Megabits per second (Mbps); †Medium Service = 12 to 25 to Mbps; ‡Advanced Service = more than 25 Mbps

Source: https://www.fcc.gov/research-reports/guides/household-broadband-guide

Figure 2: Federal Communications Commission: Broadband Speed Guide

Activity	Minimum Download Speed
General Usage	
General Browsing and Email	1 Mbps
Streaming Online Radio	Less than 0.5 Mbps
VoIP Calls	Less than 0.5 Mbps
Student	5–25 Mbps
Telecommuting	5–25 Mbps
File Downloading	10 Mbps
Social Media	1 Mbps
Watching Video	
Streaming Standard Definition Video	3–4 Mbps
Streaming High Definition (HD) Video	5–8 Mbps
Streaming Ultra HD 4K Video	25 Mbps
Video Conferencing	
Standard Personal Video Call (e.g., Skype)	1 Mbps
HD Personal Video Call (e.g., Skype)	1.5 Mbps
HD Video Teleconferencing	6 Mbps
Gaming	
Game Console Connecting to the Internet	3 Mbps
Online Multiplayer	4 Mbps

Source: https://www.fcc.gov/reports-research/guides/broadband-speed-guide

Ohio at a Glance

In state fiscal year 2019, the Ohio General Assembly created the Broadband Development Grants through the Ohio Third Frontier program. The program provided grants to collect data regarding the deployment of internet services and draft internet service area maps based on upload speeds. Using a third-party evaluator to review the proposals, Ohio Third Frontier provided a grant of $1 million to Connected Nation Ohio to collect the internet deployment data and create the service area maps. The data and maps allow the state to accurately identify how internet is being deployed in Ohio and where high-speed internet access is still needed. The baseline maps allow the administration to track deployment to reduce the duplication of service. These maps are based on the most up-to-date data from the FCC and show how connectivity is an issue for many Ohioans, particularly in rural areas. The high-speed internet access maps can be found on the InnovateOhio website at InnovateOhio.gov/Broadband.

In January 2019, Governor DeWine established InnovateOhio, led by Lt. Governor Jon Husted. InnovateOhio's mission is to make Ohio the most innovative, creative, and entrepreneurial state in the Midwest. InnovateOhio also seeks to use technology in government to improve services, reduce cost, and spur a culture of innovation in Ohio.

InnovateOhio, in partnership with the Ohio Department of Transportation, released a Request for Information (RFI) in June 2019. The purpose of the RFI was to gather best practices and identify how the state can utilize current resources to expand internet access to the unserved and underserved areas of the state. The administration received 24 responses to the RFI and the review committee held interviews with seven of the respondents. The RFI and its report can be found on the Ohio Broadband Strategy webpage at InnovateOhio.gov/Broadband.

The RFI responses also identified that carriers are investing in Ohio networks, new companies are establishing a presence in Ohio, private sector partnerships are developing to increase access, and communities are actively working to improve their internet access.

The responses, coupled with additional meetings with industry stakeholders, has provided the background necessary for the State of Ohio to identify how to increase high-speed internet access to the more than 300,000 households without access.

Telehealth

Goal: Launch a telehealth pilot that provides much needed mental health services to underserved and unserved areas of the state, increasing high-speed connectivity in these areas

Ohio is in the midst of a public health crisis. The State ranks as one of the top five states in the nation for incidence of Adverse Childhood Experiences (ACEs). Nearly half of all Ohio children have experienced one ACE, while one in seven have experienced three or more ACEs. These traumatic events – such as experiencing neglect or witnessing violence – can deeply impact the mental health of Ohio's young people.

The DeWine-Husted Administration is focused on improving access to mental health services and drug treatment programs for Ohioans. The Governor's Office of Children's Initiatives oversees advancing policies that improve home visits, early intervention services, early childhood education, foster care and children's physical and mental health. According to Ohio Department of Health (ODH) data, youth suicide from ages 8-19 in Ohio rose from 125 deaths in 2017 to 128 in 2018.[1] This is roughly a 50% increase from the last decade. The increase is a result of a variety of factors, but one common theme exists: access to mental health treatment for Ohio's children.

The RecoveryOhio Advisory Council's Initial Report from March 2019 referenced rates for Ohio in both substance use disorders and mental illness.[2] The National Survey on Drug Use and Health (NSDUH), an annual study completed by the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA), assesses the rates of substance use disorders and mental illness in each state. The most recent study, released in September 2018, found that Ohio rates of both substance use problems (including alcohol use disorder and drug use disorder) and mental health disorders were slightly higher than national averages across almost all age groups. There also is high prevalence of both substance use problems and mental health disorders in transitional age individuals (ages 18-25) with one in six affected with a substance use disorder and one in four affected with a mental health disorder in Ohio.

In Ohio and across the country, individuals with mental health issues struggle to find they necessary care. According the Health Resources and Services Administration (HRSA), 61% of areas with a mental health professional shortage are rural or partially rural.[3] A supply gap also exists between the need for child mental health professionals where experts project that the need for adolescent psychiatrists will increase to over 8,000 in 2020, falling short of the estimated 12,000 plus needed to meet demand.[4]

The expansion of internet services has transformed the way healthcare services are provided to patients. Access to healthcare can vary due to a variety of factors, such as distance to medical facilities and time constraints. New avenues created by telehealth and telemedicine services have expanded throughout Ohio, resulting in faster treatment and better overall health care services. Providers are utilizing live video conferencing, remote patient monitoring, and mobile health.

In July 2019, Governor DeWine signed legislation that included a provision requiring health benefit plans to cover telemedicine services on the same basis and to the same extent that the plan provides coverage for in-person health care services. The legislation also prohibits such plans from excluding telemedicine services. Also, physicians can establish doctor-patient relationships through telemedicine services in order to issue prescriptions.

1. Ohio Department of Health, Ohio State Health Assessment- Population Health https://analytics.das.ohio.gov/t/ODHPIPUB/views/SHA_FINAL_Domain_PopHealth/09_PopHealth
2. RecoverOhio Advisory Council's Initial Report, March 2019 https://governor.ohio.gov/wps/wcm/connect/gov/243a2827-052c-40e0-8b4f-fbd638add11a/RecoveryOhio_062019.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-243a2827-052c-40e0-8b4f-fbd638add11a-mJT5EDP
3. Bureau of Health Workforce, HRSA, U.S Department of Health & Human Services. (January 2017). Designated Health Professional Shortage Areas Statistics.
4. Hoge, M. A., Morris, J. A., Daniels, A. S., Stuart, G. W., Huey, L. Y., & Adams, N. (2007). An Action Plan for Behavioral Health Workforce Development. http://annapoliscoalition.org/wp-content/uploads/2013/11/action-plan-full-report.pdf

Telehealth services depend on reliable, high-speed internet options and are only as good as the internet connection behind them. The administration is committed to expanding and improving health services to improve the lives of Ohioans. Delivering high-quality healthcare to Ohioans through telehealth can be accomplished by:

- Expanding access to high-speed internet for rural Ohioans.
- Leveraging health assets to link Ohio's hospitals and health systems to schools for greater mental health access through high-speed internet.

The FCC continues to focus on connecting Americans to health services with a mission focused on supporting telehealth services. Ensuring that rural health care providers have access to internet and telephone service at rates comparable to those paid by urban providers is a core mission of the FCC. The agency is also looking for new ways to boost telehealth efforts and maintains a dedicated team focused exclusively on connectivity and health care.

Currently, the FCC has the following programs in place for telehealth support:

- **Rural Health Care Program:** Provides funding to eligible health care providers for telecommunications and internet services necessary for the provision of health care.
- **Connect2HealthFCC Task Force:** Supports the intersection of internet, advanced technology and health and further charting the internet future of health care, serving as an umbrella for all FCC health-oriented activities to help enable a healthier America.
- **Wireless Medical Telemetry:** Ensures vital health services have access to the spectrum needed to avoid interference.

In 2019, the FCC announced the Connected Care Pilot Program that would bring telehealth services to low-income patients, veterans, and areas lacking adequate health care. This pilot is looking to establish $100 million to support telehealth services and would cover certain internet connectivity costs for internet-enabled telehealth services that connects patients to doctors and enables treatments for a range of health conditions.

MetroHealth in Cleveland responded to the state's RFI to explain how it could leverage existing health assets as a hub for high speed internet coverage in order to provide telehealth services to residents. Horizon also described how a hospital or health center could be an anchor tenant to allow a provider to run wire to a location and expand coverage out to the nearby community. Both are examples of innovative projects to consider for healthcare expansion through increasing access to high speed internet.

Ohio will work to leverage and create value out of existing health assets for high speed internet expansion to rural areas for telehealth services. The state will also continue to focus on federal dollars available to support telehealth services in Ohio.

Statewide Grant Program

Goal: Work with the Ohio General Assembly to implement a statewide grant program to assist in bringing high-speed internet access to unserved and underserved areas in Ohio.

Low-population areas and rural communities face hurdles when seeking internet access such as basic service infrastructure which require significant upfront costs. In response to these costs, many states have created an internet grant program to assist in expanding service to unserved and/or underserved areas.

Many respondents to the RFI believed that they could expand internet access to more areas around the state if they could access capital administered from the state. Respondents also referenced similar grant programs that exist in other states. For example, Minnesota's Border-to-Border Internet Development Grant Program provides funding to incentivize existing internet providers to build infrastructure in areas of the state that are unserved and underserved. Minnesota has seen overwhelming support for the program, appropriating roughly $86 million to the program since 2014. Going forward, the State's goal is to achieve statewide 100Mbps down/20Mbps upload by 2026.

Additionally, during an in-person interview for the RFI, AT&T commented on Michigan's grant program that enabled a feedback process and ensured project sustainability. This funding was only available for areas in need of services.

The administration will work with the Ohio General Assembly to implement a grant program focusing on the following principles:

1. The grant will supplement unserved and/or underserved areas. Areas should be considered underserved if they do not have access to the federal definition of high-speed internet, which is 25 Mbps download speed and 3 Mbps upload speed. The grant should not be used to supplement areas that already have existing networks.
2. The grants should incentivize private sector investment and incentivize private companies to build needed infrastructure.
3. The state should establish sound metrics and eligibility requirements to ensure grant funds are only used within eligible areas and expand coverage.
4. The program should not favor one type of technology or method of expanding coverage over another, focusing on expanding coverage in the most appropriate manner for the community.

Regulatory Reform

Goals:

- **Create an online ODOT permitting process.**
- **Utilize the Common Sense Initiative to assess the regulatory environment associated with high speed internet.**

The Ohio Department of Transportation (ODOT) should explore ways to improve its permitting process for rights of way. One example is moving towards an online permitting process for faster and easier access. The state should continue to review internal processes to ensure it is not hindering internet expansion efforts.

Understanding how regulations affect internet supply and deployment at both the state and local levels is crucial. Recent developments with high-speed internet and internet services as well as the development of new technology make it necessary for the state to review its internet regulations to ensure they do not hinder internet expansion to unserved and underserved areas of the state.

RFI respondents identified that Ohio's regulatory structure could be changed to increase internet expansion and make the process more economical. Examples from the Report of the Review Committee include streamlining permitting processes, simplifying installation processes, and increasing industry standardizations. These suggestions represent a small overview of the overall regulatory environment related to high speed internet expansion in Ohio.

The mission of Common Sense Initiative (CSI) is to ensure state regulations are fair, consistent, transparent, encourage economic growth, and keep up with the speed of business and advancing technology. CSI will identify reforms to the regulatory policies at the state level that impact the expansion of high-speed internet. The administration will use those recommendations to design and administer smart regulations that treat all stakeholders fairly while encouraging deployment and competition with high speed internet expansion to rural areas

Economic Development and Entrepreneurial Initiatives

Goals:

- Use existing economic development tools to incentivize investments in innovative technologies to reach new customers.
- Identify assets to expand high-speed internet, such as towers.

High-speed internet connectivity is achieved through a variety of technologies, such as fiber and wireless options like mobile and fixed wireless solutions. Some have been widely deployed while other options, like Citizens Broadband Radio Service (CBRS) bandwidth, are new and come with new proposals to delivering high-speed internet. Although these technologies vary in the way they are delivered to consumers, the results are the same: high-speed internet connectivity.

The future of high-speed connectivity is evolving, and Ohio must develop strategies to leverage technologies to expand internet coverage in the state. The goals are the following:

- Encourage and incentivize companies that want to use innovative technologies to reach new customers by using existing economic development tools.

  The economic development tools to drive innovative technologies could be partnerships, financial assistance, loans, tax credits, community support, or a variety of other tools. The state will need to serve as a catalyst to accelerate high-speed internet expansion by providing proper economic development resources to enable companies to invest their technologies across the state.

  For example, fixed wireless deploys a signal from a tower to a fixed reception point located on a business or residence. It utilizes directional broadcasting that allows for it to provide a greater bandwidth than mobile data. AT&T stated in its response that it is deploying fixed wireless technology to deliver high-speed internet access to mostly rural locations identified by the FCC. This is a service that uses a fixed wireless connection between the customer and the fiber at a cell tower. Starry, Inc. also referenced that it has developed and deployed proprietary fixed wireless technology to connect consumers to high-speed wireless internet.

  Agile Communications referenced that its core business model utilizes fiber and current and next generation wireless solutions that are highly complementary and should be incorporated into Ohio's solution. Charter Communications stated that it is interested in targeting unserved areas of the state with an internet solution through use of new wireless technology and network expansion where Spectrum has nearby coaxial and/or fiber network assets. Aplex also responded that it uses fixed wireless technologies to provide internet services in the Northwest Ohio area.

  These are just a few of the potential ways innovative technologies can be deployed to provide high-speed internet around the state. Ohio should leverage its economic development tools and resources to increase utilization of these technologies.

- Identify assets to expand high-speed internet, such as towers.

  Many of the new and existing wireless technologies require the use of towers to distribute a signal. RFI respondents expressed similar wishes to utilize towers as an asset to leverage to increase connectivity.

  Crown Castle responded that it has more than 40,000 towers and its shared business model allows for towers to host different carriers, preventing the need for redundant towers within an area. In 2018, AT&T made more than 4,500 wireless network upgrades in Ohio, including new cell sites.

  Convergence Internet stated that it received a federal grant to increase internet coverage in Vinton and Meigs Counties and hopes to access MARCs towers to provide wireless solutions. Century Link also referenced that it would be open to tower locations and MetroHealth indicated that it would work to utilize available cell towers.

  Strategically accessing and building towers within rural areas throughout the state will allow for greater distribution of wireless solutions. Especially focusing on unserved locations can bring high-speed internet solutions to these areas.

Digital Literacy

Goal: Work with providers to develop digital literacy programs to utilize when expanding coverage.

Today, literacy goes beyond being able to read and write. It includes the ability for adults and children to understand how to access and utilize technologies and the internet to be successful. The American Library Association (ALA) defines digital literacy as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."

According to the Institute of Education Sciences' National Center for Education Statistics, 74% of US adults use a computer at work and 81% use a computer in everyday life.[5] Additionally, about 16% of US adults are not digitally literate, meaning they could not pass a basic computer test of simple tasks like using a mouse and highlighting text on a screen.[6]

Ohio must emphasize strategies to improve digital literacy while expanding high-speed internet access to underserved and unserved Ohioans. Earlier this year, AT&T launched its "Believe Cleveland" initiative to improve career prospects through digital literacy. Additionally, MetroHealth outlined in its response how it would expand internet coverage and then create digital literacy programs to help educate people on how to use technologies. These are examples of how to address digital literacy while expanding coverage.

The National Telecommunications and Information Administration's (NTIA) InternetUSA has developed a Community Connectivity Framework to promote internet connectivity and improve digital inclusion at the local level.[7] Recommendations for consideration include:

- Adoption and use: Who is using the Internet? Are there digital divides?
- Digital Inclusion: What proactive measures are you taking to ensure digital equity?
- Digital Skills: Do existing programs provide a ladder for residents to gain digital proficiencies - from basics to coding?
- Device Ownership: Do people have access to the devices they need to learn, create, and participate?

Addressing digital literacy also goes beyond the expansion of access. It requires digital training and education. The administration is addressing digital literacy through programs such as TechCred and implementing coding as a foreign language in high schools, as well as focusing on career readiness, K-12 STEM programs, and other career education programs.

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5. Institute of Education Sciences, National Center for Education Statistics. Stats In Brief: A Description of US Adults Who Are Not Digitally Literate. May 2018
https://nces.ed.gov/pubs2018/2018161.pdf

6. Ibid.

7. National Telecommunications and Information Administration, BroadbandUSA. Community Connectivity Assessment.
https://www2.ntia.doc.gov/files/bbusa_assessment_factsheet_6_21_17.pdf

Ohio's Interstate System and Rights of Way

Goals:

- Develop a statewide policy to allow access to limited access rights of way for fiber or other internet providers.
- Utilize the most up-to-date technologies on Ohio's intelligent transportation system.

The State of Ohio owns a variety of assets that can be used to expand high-speed coverage to rural areas. Ohio has the country's 4th largest interstate system, 2nd largest inventory of bridges, and 6th highest number of vehicle miles traveled. Our transportation system connects Ohioans to 60% of the country within a day's drive. This vast resource represents the overall strength of Ohio and the generational investments made over time and can be a resource to leverage to ensure all Ohioans have access to high-speed internet.

The RFI listed the following existing assets and asked for unique solutions as to how they may be leveraged as part of a digital infrastructure and connectivity plan:

- Ohio Department of Transportation (ODOT) Right of Way
- U.S. 33 Smart Corridor
- I-90 Corridor ("The Lake Effect Corridor")
- ODOT Intelligent Transportation System (ITS)
- MARCS
- ODOT Cell Towers
- OARnet
- Continually Operating Reference Station (CORS)/ Virtual Reference System (VRS)

Ohio may leverage the state's interstate system to expand internet to rural areas by:

- Creating standard use authorizations for accessing sections of Ohio's interstate system.
- Leveraging negotiables within right of way agreements to ensure expansion to rural areas of the state.
- Repurposing savings and generated revenue back into expansion programs, such as an expansion grant program.

ODOT has limited access and non-limited access rights of way. Limited access right of way is typically reserved for interstate highways or their look-alike. On limited access right of way ODOT has sole authority and discretion to allow occupancy/use. To date, outside of perpendicular or transverse crossings, ODOT has allowed few entities longitudinal access to its limited access rights-of-way.

Non-limited access right of way is typically utilized on state routes (that do not look like an interstate). Outside of municipal boundaries, ODOT has sole authority and discretion to allow occupancy/use. Inside of municipal boundaries, the municipality typically controls such access. Within non-limited access rights of way ODOT has

to date allowed a variety of utilities to locate longitudinally by permit.

Many RFI respondents outlined ways to leverage highway right of way to expand access. For example, Ernst & Young recommended analyzing the state's value of assets and rights of way then balancing policy objectives with this value. Horizon stated that it has worked for decades with ODOT to place fiber along roadways and anticipates significant benefit from access to rights of way along both limited access and non-limited access highways. It also commented that it would commit to extending laterals to reach small towns and unserved/underserved rural areas along the routes.
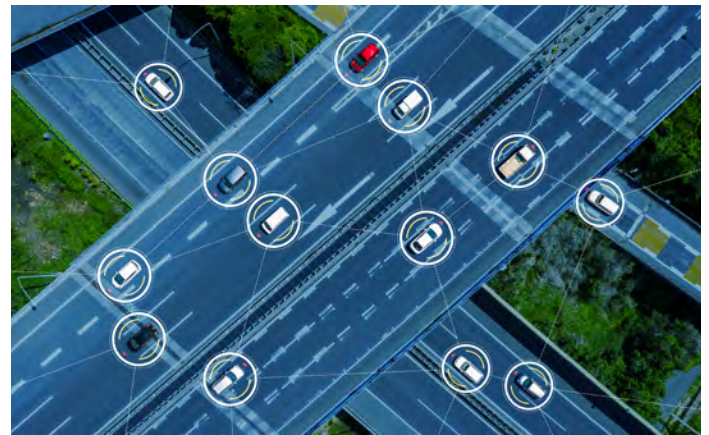
Independents Fiber Network responded that it would provide reduced services to the state for access to the right of ways in Ohio. It also stated that being able to expand along ODOT right of ways would help serve even more rural areas of the state. As a real estate development company, New Albany Company commented how fees associated with right of ways should be deposited into a dedicated fund to support the extension of internet service to underserved areas.

Ohio offers numerous resources for companies engaging in autonomous and connected vehicle technologies. For example, Ohio has six designated "smart" projects aimed at testing real-world autonomous and connected vehicle technologies. The Transportation Research Center (TRC), North America's largest independent vehicle testing facility is located in East Liberty, Ohio, 40 minutes from Columbus.

The future of intelligent transportation systems and networks need ubiquitous connectivity, further requiring the need for internet expansion in this state. Unless these technologies are to remain strictly within urban areas, internet expansion must continue to occur. Going forward, Ohio will utilize the most up-to-date technologies on Ohio's intelligent transportation system to build a best in class network.
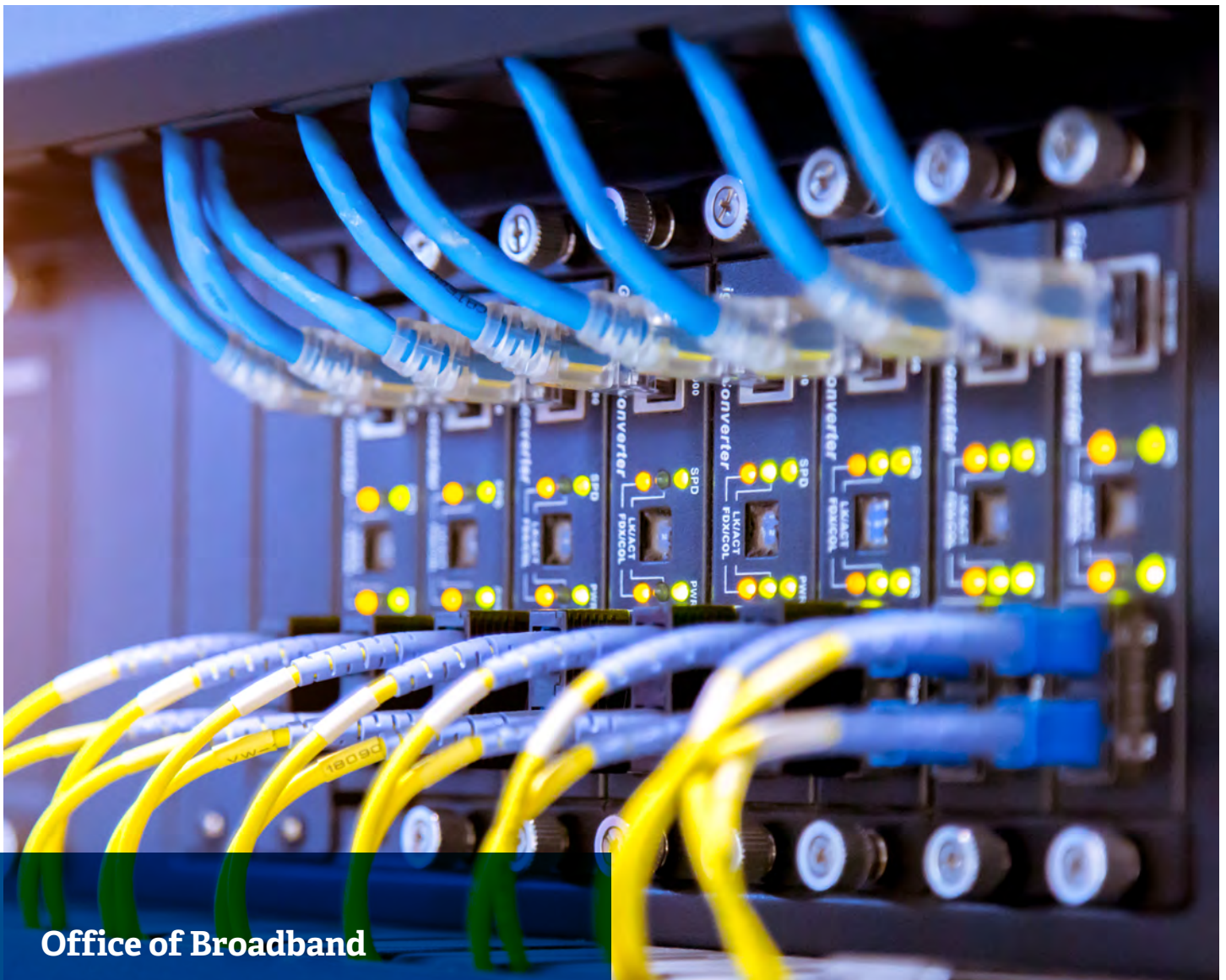
Office of Broadband

Goal: Identify an executive branch state agency to house a state broadband office.

The current internet landscape is decentralized in Ohio. No single agency or office has full oversight over internet expansion within the state. The administration will create a new office of broadband in order to optimize expansion efforts and leverage federal programs to expand internet access. This office may serve as a single contact point for state agencies and program managers as well as private businesses and internet providers as they work to expand high-speed internet in Ohio

USDA ReConnect

In 2018, the United States Department of Agriculture (USDA) announced that it is offering up to $600 million in loans and grants to help build internet infrastructure in rural America. Telecommunications companies, rural electric cooperatives and utilities, internet service providers and municipalities may apply for funding through USDA's new ReConnect Program to connect rural areas that currently have insufficient internet service.

The goal of the ReConnect program is to expand internet access to rural areas without sufficient internet access. Sufficient access is defined as 10 Mbps download speed and 1 Mbps upload speed. Applicants may apply for three different funding options:

1. 100% grant with $25 million maximum per applicant.

2. 50% loan and 50% grant with $50 million maximum per applicant and interest rates set at the US Treasury rate.

3. 100% loan with $50 million maximum per applicant and a 2% fixed interest rate.

Legend

- ■ Special Evaluation Criteria: Tribal Lands
- ■ Limited Eligibility: CAF II - Auction 903 Winners
- ■ Not Eligible: Non-Rural Areas
- ■ Not Eligible: Pending Applications
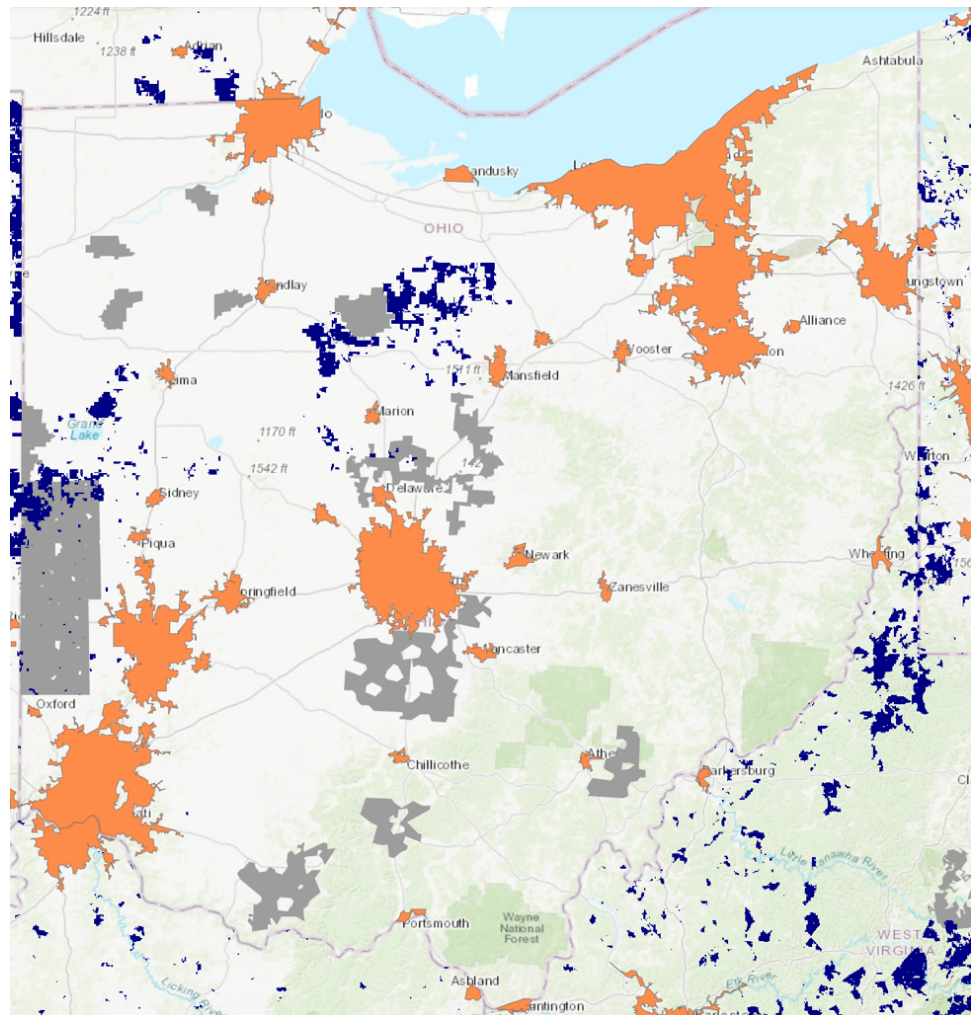- ■ Limited Eligibility: Protected Broadband Service Areas

Award Funds may be used to pay for the following costs:

1. To fund the construction or improvement of buildings, land, and other facilities that are required to provide internet service.

2. To fund reasonable pre-application expenses.

3. To fund the acquisition and improvement of an existing system that is currently providing insufficient internet service (eligible for 100 percent loan requests only).

4. To fund terrestrial based facilities that support the provision of satellite internet service.

The ReConnect Mapping Tool is a resource to help applicants determine eligibility of proposed service areas. The colored regions in the map either have limited eligibility or are ineligible. Note that the areas lacking color are not necessarily eligible.

In the most recent USDA round of ReConnect funds, the scoring criteria awarded 20 points to projects where states have a internet plan. Applicants were required to submit evidence from the Governor's Office that a internet plan has been implemented and updated, that there are no restrictions on utilities providing internet service, and that procedures are in place for expediting right-of-way and environmental requirements.

Putting a statewide internet plan in place will make Ohio more competitive for federal dollars and guarantee full points available to ReConnect applicants from Ohio.